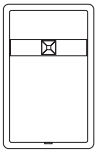
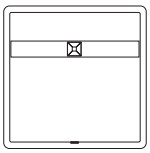
IntelliSense®

Flush Mount Glassbreak Detectors
INSTALLATION INSTRUCTIONS





Models: FG-1025F FG-1025FD

FEATURES

- Advanced microcontroller with Digital Signal Processing (DSP)
- Continuous self-test
- No adjustments
- No minimum range
- Remote Test Mode activation with FG-701 simulator
- Cover tamper
- Selectable Alarm Memory
- LED enable/disable
- 8 - 14 VDC operation
- PCB and housing designed to protect against ESD and mechanical damage
- Energized Form A relay
- Watchdog for microcontroller
- Green event LED lights when signals are received
- Unobtrusive LEDs below surface of plastic

MOUNTING LOCATION

The FG-1025F/FD can be mounted in corners, on walls, or ceilings. Refer to the guidelines below when selecting a mounting location:

- Mount the detector within 25' (7.6 m) of the glass.
- The detector must have a clear line-of-sight and a clear view of the protected glass. Do not install beyond the maximum specified range even if testing indicates greater range.
- The preferred location is on the wall or ceiling directly opposite the glass. Mounting on freestanding posts and pillars is not recommended.
- When wall mounting, mount the detector at a height of at least 6 feet (1.8 m) to avoid accidental screening if furniture in the room is moved.
- Curtains, blinds, and other window coverings will absorb energy from breaking glass. Heavy curtains, for example, will effectively block the sound signal. In these cases, mount the detector on the window frame behind the window covering or above the window.
- Do not mount within 3 feet (0.9 m) of forced air ducts, sirens, or bells measuring two inches (5 cm) or more in diameter.
- **Be sure to test the detector for detection in the final mounting location.**

Mounting Guidelines:

The FG-1025F/FD is designed to detect framed glass broken by an impact sufficient to make a hole. To minimize the chance of false alarms:

- Do not use outside.
- Avoid installing in rooms with high-level noise sources, such as air compressors, bells, power tools, etc., if those sources can be active when the detector can signal an alarm.
- Test false alarm immunity by activating any known noise sources in the room.

To maximize detection:

- Mount the detector on a wall or ceiling directly opposite the glass if possible. The least desirable mounting location is on the same wall as the glass.
- Minimize range to the glass. Do not install beyond the maximum specified range even if testing indicates greater range.
- Verify all installations back to the panel to be sure that the protection loop is intact.

Tip: It is a good idea to mount the detector temporarily in the intended location and power it with a 9 V battery, until testing has established effective range coverage. If the 9 V battery is low, it cannot supply sufficient power and the detector will not operate.

MOUNTING PROCEDURE

IMPORTANT NOTE: The FG-1025F detector flush mounts in a single gang box. The FG-1025FD detector flush mounts in a double gang box. (Gang box is not required; however, mounting directly in drywall is not recommended.)

The FG-1025FD detector is identical to the FG-1025F detector, except the faceplate and housing are doublewide.

This manual depicts the FG-1025F (single gang box) detector. All instructions also apply to the FG-1025FD detector.

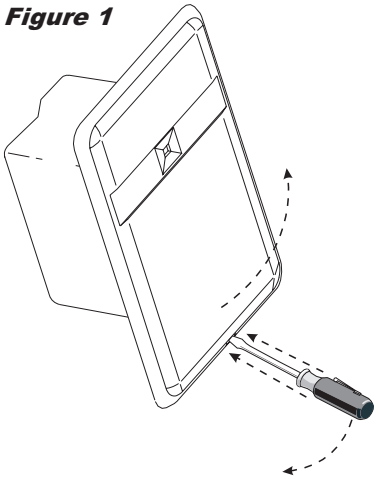
STEP 1

REMOVING THE FACEPLATE

1. To remove the faceplate of the detector, use a screwdriver to pry up on the latch at the bottom of the detector. (See Figure 1.)

NOTE: The FG-1025F/FD is designed to be mounted without removing the printed circuit board (PCB). **DO NOT** remove the PCB from the protective housing.

Figure 1

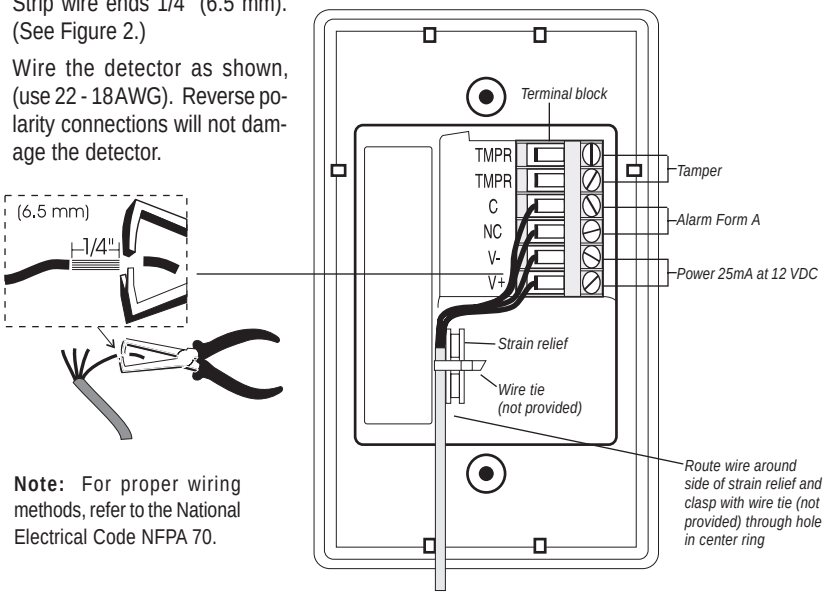


STEP 2

WIRING

1. Strip wire ends 1/4" (6.5 mm). (See Figure 2.)
2. Wire the detector as shown, (use 22 - 18 AWG). Reverse polarity connections will not damage the detector.

Figure 2 (rear view of FG-1025F)



Note: For proper wiring methods, refer to the National Electrical Code NFPA 70.

MOUNTING PROCEDURE *continued...*

NOTE: When wiring is complete, push excess wire back into the wall box.

TAMPER SWITCH

The FG-1025F/FD comes equipped with a normally closed cover tamper switch. Any attempt to remove the front cover will cause this switch to open and stay open until the cover is secured. This switch may be used on a separate NC loop (See Optional Wiring Examples, Example 1), or in series with the alarm relay (See Optional Wiring Examples, Example 2), in which case removing the front cover will appear to the panel as an alarm.

FG-1025F/FD CONFIGURATION

Configure DIP switch S1 to best suit the application. (See Figure 3.)

MOUNTING THE DETECTOR

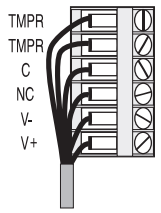
Mount the FG-1025F/FD detector as shown in Figure 4. For mounting the detector, #6 flathead (M 3.5) screws are recommended. (Screws are not provided.)

REPLACING THE FACEPLATE

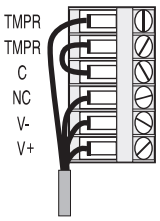
The faceplate has an effect on the sensitivity of the microphone. Be sure the faceplate is attached before testing the detector. (See Figure 5.)

Note: If required, the faceplate can be secured with a screw after installation. Break out the cover screw breakout flash, and secure the faceplate with a #4 (M 3) screw. (See Figure 4.)

OPTIONAL WIRING EXAMPLES:



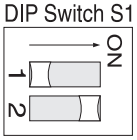
Example 1
Tamper is on a separate loop.



Example 2
Tamper and relay on the same loop (NC). Jumper wire from C to TMPR

STEP 3

Figure 3



LATCH
LED

☐ = FACTORY DEFAULTS

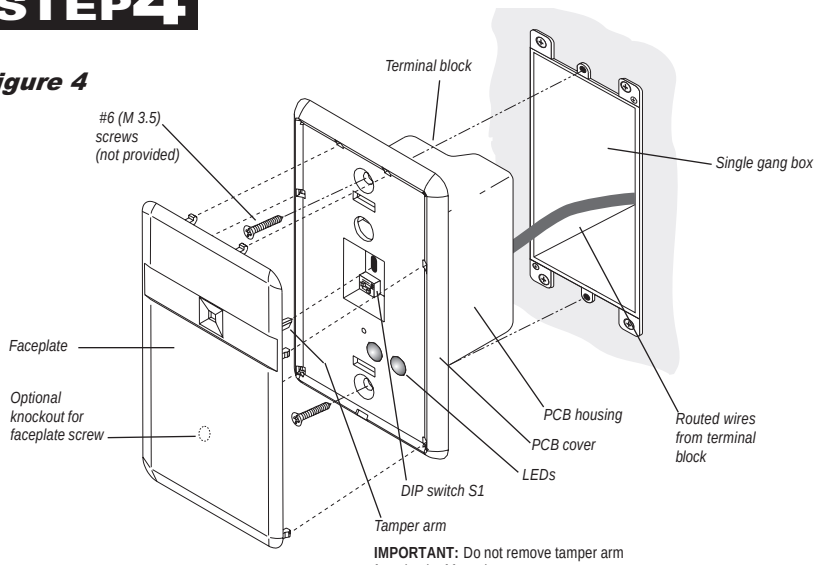
SWITCH	OFF	ON
LATCH	Red alarm LED lights for 5 seconds when detector alarms	Red alarm LED latches ON when detector alarms[1,2]
LED	LEDs are disabled except during power-up test	LEDs are enabled

[1]Latched alarm LED does not affect timing of alarm relay.

[2]Reset the alarm LED by removing and restoring power, or by toggling the S1 LATCH switch off and on.

STEP 4

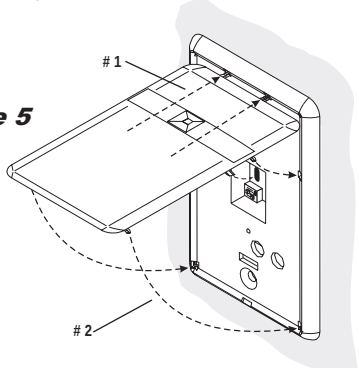
Figure 4



IMPORTANT: Do not remove tamper arm from back of faceplate.

STEP 5

Figure 5



1. To replace the faceplate, hook the latches to the top of the detector first (#1). Then pivot the faceplate downward and snap the faceplate into place (#2). (See Figure 5.)

TESTING

The FG-1025F/FD should be tested at least once each year. Test the detector with the FG-701 Glassbreak Simulator. The model FG-700 Glassbreak Simulator can be used if it is set for the TEMPered glass sound. Other glassbreak simulators will not give accurate indication of range.

You must place the FG-1025F/FD in Test Mode before you can test the detector.

If you are using the FG-700, or if for any reason remote activation cannot be used, use a screwdriver to short the test pads on the PCB (see Figure 6). This will activate Test Mode.

Once in test mode, the installer can test for range detection.

Make sure to replace the faceplate of the FG-1025F/FD before beginning testing.

TO ACTIVATE TEST MODE (FIGURE 7)**:**

1. Stand within 10 feet (3 m) of the detector.
2. Switch the FG-701 to ACTIVATE and MANual modes.
3. Point the front of the simulator at the detector and press the red start button.
4. You should hear a short buzz from the simulator, and the green LED on the FG-1025F/FD should begin flashing about once per second to indicate it is in Test Mode.

NOTE: In Test Mode the LED disable switch is overridden.

TO TEST THE FG-1025F/FD (FIGURE 8)**:**

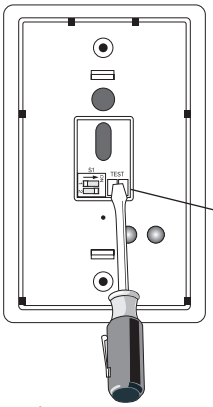
1. Place the detector in Test Mode as described above.
2. Set the FG-701 switches to the TEST and FLEX positions.
3. Press the red start button. The simulator will "click" on and start an eight second armed period.
4. Position the FG-701 near the farthest point of the protected glass and point it directly at the FG-1025F/FD.
5. Generate a flex signal by carefully striking the glass with a cushioned tool. The FG-701 will respond by producing a burst of glass break audio.
6. If both the flex and audio are received properly, the red alarm LED on the FG-1025F/FD will light.

Window coverings:
If window coverings are present (such as venetian blinds or curtains), close them fully and hold the FG-701 behind the window coverings for testing. (See Figure 9.) If testing is unsuccessful, it may be necessary to move the FG-1025F/FD closer.

7. After testing, exit the Test Mode using the same procedure for activating the Test Mode. The FG-1025F/FD also will automatically exit Test Mode after ten minutes.

STEP 6

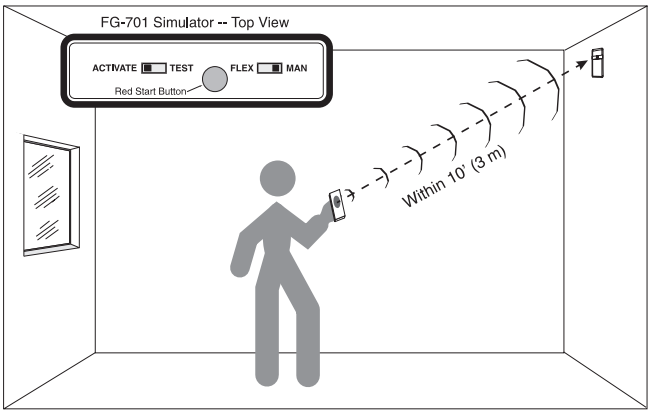
Figure 6

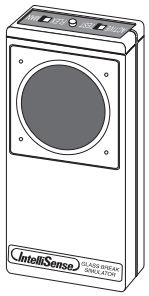


NOTE: If you are using the FG-700, or if for any reason remote activation cannot be used, use a screwdriver to short the test pads on the PCB (see Figure 6). This will activate Test Mode.

Use a screwdriver to short the test pads on the PCB to activate the test mode.

Figure 7 *Activating Test Mode*

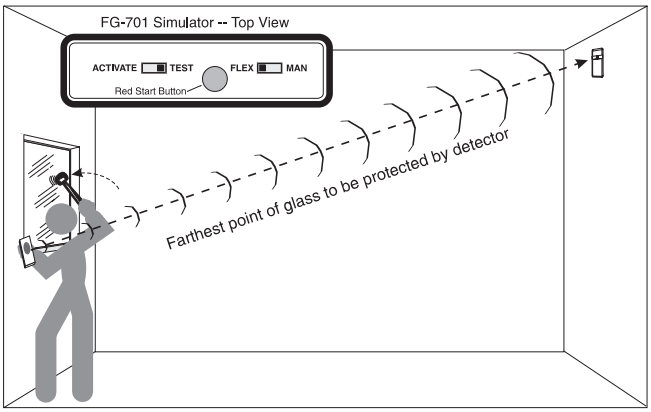




FG-701 Glassbreak Simulator

IMPORTANT: Some environmental factors may reduce the detector activation range. If you do not see the green LED flashing after pressing the red start button, move closer to the detector and try again.

Figure 8 *Testing*



NOTE: You can also use the simulator in the MANual mode to test audio alone. The blinking green LED on the detector will flicker when the simulator audio is received correctly. (See the FG-701 Operating Instructions for additional information.)

Figure 9

SELF-TESTS

The FG-1025F/FD automatically performs a series of self-tests during power-up, and continuously (when the detector is not detecting a trouble or alarm condition). If any self-test fails, the detector will signal trouble by flashing the LEDs alternately about once per second. Protection will continue if possible. If the trouble condition clears, the LEDs will return to the normal state. Always return the detector for repair if there is any indication of trouble, even if the trouble is temporary.

POWER-UP SELF-TESTS

- **RAM Test:** Write & read all RAM locations with one's & zero's
- **Arithmetic Test:** Verify correct results for CPU arithmetic
- **Logic Test:** Verify correct results for data comparisons
- **Clock Rate Test:** Check clock frequency by measuring external time constants
- **Active Analog Circuit Test:** Inject signals into analog channels to check gains, filters, A/D, and interrupts

CONTINUOUS SELF-TESTS

- **Watchdog:** Supervises microcontroller
- **ROM Checksum:** Firmware ROM checksum verified
- **RAM Test:** Write & read RAM locations with one's & zero's
- **Logic Test:** Verify correct results for data comparisons
- **Passive Analog Circuit Test:** Verify analog inputs are within normal bounds

LED Indicators:

The two LEDs on the front cover are used to indicate the detector's operational status. The following table summarizes the LED operation when the LEDs are enabled.

Condition	Green LED	Red LED
Normal, no event	OFF	OFF
Normal, event detected	Flicker	OFF
Normal, break detected	OFF	ON
Power-up self-test	ON, one second	ON, one second
Trouble detected	Flash ON/OFF	Flash OFF/ON
Test mode, no alarm	Flash once per second	OFF
Test mode, event detected	Flicker	OFF
Test mode, alarm	Flash once per second	ON

The FG-1025F/FD is compatible with the most common gang boxes including:

SINGLE GANG: Allied Molded 9331, Allied Molded 1096, Carlon B116A, Carlon B114R, Carlon B118A.
DOUBLE GANG: Carlon B225R.

SPECIFICATIONS

Range:
25' (7.6 m) maximum
No minimum range

Alarm Relay:
Form A, 125 mA maximum
25 VDC maximum

Alarm Duration:
5 seconds (unaffected by alarm LED latching)

Tamper Switch:
Cover tamper
25 mA maximum
24 VDC maximum

Power Requirements:
8 - 14 VDC; 25 mA typical at 12 VDC, 35 mA max
AC Ripple: 4 Volts peak to peak at Nominal 12 VDC

Operating Temperature:
32° to 120° F (0° to 49° C)
Storage: -4° to 122° F
(-20° to 50° C)

RF Immunity:
30 V/m, 10 MHz - 1000 MHz

ESD Immunity:
10 kV, Discharges of either polarity to exposed surfaces

Dimensions:
FG-1025F: Faceplate: 4.49" x 2.76" (114mm x 70mm), rear cover: 2.65"H x 1.97"W x 1.85"D (67.4mm x 50mm x 47mm)
FG-1025FD: Faceplate: 4.49" x 4.49" (114mm x 114mm), rear cover: 2.65"H x 1.97"W x 1.85"D (67.4mm x 50mm x 47mm)

Weight:
FG-1025F: 3.1 oz (87g), packed product: 4.7 oz (133g)
FG-1025FD: 3.8 oz (107g), packed product: 6.5 oz (184g)

Accessories:
FG-701 Glassbreak Simulator

Approvals/Listings:
FCC certified
UL listed

Protected Glass:
Minimum size for all types is 11" (28 cm) square. Glass must be framed in the wall of the room or mounted in a barrier of 36" (0.9 m) minimum width.

Type	THICKNESS Minimum	Maximum
Plate	3/32" (2.4 mm)	1/4" (6.4 mm)
Tempered	1/8" (3.2 mm)	1/4" (6.4 mm)
Laminated[1]	1/8" (3.2 mm)	9/16" (14.3 mm)
Wired	1/4" (6.4 mm)	1/4" (6.4 mm)
Coated[2]	1/8" (3.2 mm)	1/4" (6.4 mm)
Sealed Insulating[1]	1/8" (3.2 mm)	1/4" (6.4 mm)

[1]Laminated and sealed insulating glass types are protected only if both plates of the glass are broken.

[2]For glass coated on the inner surface with 3M Scotchtint™ type RE35NEARL or Hardglass® Security Film, reduce maximum range to 15 feet (4.6 m).

Important: The FG-1025F/FD must be connected to a UL listed power supply or UL listed control unit capable of providing **a minimum of four hours** of standby power.

Note: The FG-1025F/FD Glassbreak Detector is designed for primary perimeter security. For a complete security system, additional interior protection devices are recommended.

FCC Notice: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: 1) Reorient or relocate the receiving antenna, 2) Increase the separation between the equipment and receiver, 3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. The installer can also consult an experienced radio/television technician for additional suggestions, if necessary.

In addition, a booklet on interference, prepared by the Federal Communications Commission, is also available for reference. Order "Interference Handbook" from the U.S. Government Printing Office, Washington D.C. 20402, stock no. 0004-000-00450-7.

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